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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,636	04/01/2004	Patrick T. Petrino	10040213-1	1047
57299	7590	06/11/2007		
Kathy Manke Avago Technologies Limited 4380 Ziegler Road Fort Collins, CO 80525			EXAMINER YU, MELANIE J	
			ART UNIT 1641	PAPER NUMBER
			MAIL DATE 06/11/2007	DELIVERY MODE PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/816,636

Applicant(s)

PETRUNO ET AL.

Examiner

Melanie Yu

Art Unit

1641

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 05 April 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 11, 12, 21-23, 26 and 39-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 11, 12, 21-23, 26 and 39-41 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 April 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 9 April 2007 has been entered.

### ***Withdrawn Rejections***

1. Previous rejections under 35 USC 103(a) have been withdrawn in light of applicant's amendments and arguments.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
  2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
2. Claims 11, 12, 2-23, 26 and 37-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Daniels et al. (US 2002/0004246) in view of Crosby (US 6,217,744).

Daniels et al. teach a test system comprising: a medium containing a labeling substance that comprises first persistent fluorescent structures that emits light having a first frequency and second persistent fluorescent structures that emit light having a second frequency, wherein each of the first persistent fluorescent structures is attached to a substance that is capable of binding the first structure to a target analyte when a sample containing the target analyte is applied to the medium (each detection reagent is associated with a nanocrystal having a distinct emission peak and nanocrystal is a persistent fluorescent structure, par. 207; capture and control reagents bind the first and second structures and are present in a chromatographic medium therefore the first and second nanocrystal structures are present in a medium, par. 201; emission peak of nanocrystal incorporated into control is distinct from that exhibited by nanocrystals of the first detection reagent therefore first and second nanocrystals emit at different frequencies, par. 198); a light source positioned to illuminate a target area and a control area on the medium (par. 213); a first photodetector positioned to measure light of the first frequency originating from the target area of the medium (multiple detectors for each light emission frequency, par. 214); and a second photodetector positioned to measure light of the second frequency originating from the control area, wherein a signal from the second photodetector indicating an intensity above a threshold level indicates that the sample has passed through the target area (separate detector for each detection region with a different emission frequency, par. 214; control region has a different emission frequency than detection region, par. 198; detection of nanocrystals in the control region occurs in the presence or absence of analyte and therefore indicates that the sample has passed through the medium, par. 242). Daniels et al. fail to teach the first and second photodetectors and medium contained in a single-use module that can be inserted into a reusable module and the single use module comprising an external terminal receiving electrical power for the light source, the first and second

Art Unit: 1641

photodetectors and communicating signals between the reusable module and the single use module.

Crosby teaches a photodetector and medium necessary for optical detection contained in a single use module (optical components and porous membrane are part of the disposable device, optical components comprise the photodetector, col. 5, lines 64-col. 6, line 13) and inserted into a reusable module for communication of test signals between the single-use module and reusable module (communication between disposable analysis device and information gather and storage system, disposable device is single use and information gathering system is reusable, col. 6, lines 57-67; col. 7, lines 37-45) and the single use module comprising an external terminal receiving electrical power for the electronics in the device, including light sources and photodetectors (capacitor is external terminal that receives electrical power, col. 8, lines 28-40; electronics include light source and photodetectors, col. 6, lines 46-50), wherein the reusable module has a receptacle into which the external terminal of the single use module can be inserted to provide electrical power and communicates test signals between single use module and reusable module (device is brought in proximity with console, col. 8, lines 28-40; device may alternatively be placed into the console for transfer of data and to provide electrical power, col. 7, lines 6-10), in order to provide a self powered device that resists corrosion and degradation.

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to include in the test system of Daniels et al., the photodetectors and medium necessary for optical detection contained in a single use module that can be inserted into a reusable module for communication of test signals as taught by Crosby, in order to provide small, point of care diagnostic tests that are small in size and produces a fast quantitative or qualitative result with increased reliability. Although Crosby does not specifically teach two photodetectors, it would have been obvious to include all

Art Unit: 1641

photodetectors of Daniels et al. necessary for detection in the single use device taught by Crosby.

With respect to claims 12 and 21, Crosby teaches the reusable module implementing a user interface capable of indicating a test result on a display (console is the information gathering and storage system and has a display screen to display results from the disposable device, col. 7, lines 37-50).

Regarding claim 22, Crosby teaches that the test signals are electrical signals (col. 7, lines 14-25).

With respect to claim 23, Daniels et al. teach the first and second persistent fluorescent structures comprising quantum dots (par. 198 and 79).

Regarding claim 26, Daniels et al. teach the medium comprising a lateral-flow strip for performing a binding assay (par. 200-201) and the target area containing an immobilized substance that binds to and holds the complex including one of the first persistent structures and the target analyte (par. 200-201; capture reagent binds to the detection complex, par. 189; detection complex comprises analyte and nanocrystal, par. 137-139; capture reagent is in a capture region, par. 115).

With respect to claims 39 and 40, Daniels et al. teach the second persistent structures bind to the control strip (control ligands are in a control region, par. 115; control ligands bind to second persistent structures that have an emission frequency different from that in the capture region, par. 198). Daniels et al. also teach a first and second color filter corresponding to the first and second photodetector that transmit the first and second frequencies, respectively (multiple detectors are present, one for each region, and each has a bandpass filter for detecting a narrow wavelength range corresponding to the nanocrystal emission wavelength in the capture and control regions, par. 214).

Art Unit: 1641

With respect to claim 41, Daniels et al. teach the control area containing an immobilized substance that binds and retains the labeling substance (par. 26 and 38).

***Response to Arguments***

3. Applicant's arguments filed 5 April 2007 have been fully considered but they are not persuasive. Applicant argues that Crosby teaches an internal battery to power internal components and Daniels et al. and Crosby fail to teach a reusable module that receives electrical power for the light source and photodetectors. Applicant's argument is not persuasive because as described above, at column 8, lines 29-40, Crosby teaches an alternative embodiment, wherein the single use diagnostic device does not contain a battery, but instead contains a capacitor that is powered by the reusable device. The single use diagnostic device may be placed in the reusable device (col. 7, lines 5-10) and the electrical components may be a laser source and photodetector (col. 6, lines 47-50), therefore the new limitation is taught by Daniels et al. in view of Crosby.

***Conclusion***


No claims are allowed.

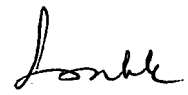
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Melanie Yu whose telephone number is (571) 272-2933. The examiner can normally be reached on M-F 8:30-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1641

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
Melanie Yu  
Patent Examiner  
Art Unit 1641

  
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